

**Physicochemical properties of air discharge-generated manganese oxide  
nanoparticles: Comparison to welding fumes**

Larissa V. Stebounova,<sup>1</sup> Natalia I. Gonzalez-Pech,<sup>2</sup> Thomas M. Peters,<sup>1,\*</sup> Vicki H.  
Grassian<sup>2,3,\*</sup>

\*Corresponding authors

<sup>1</sup> Department of Occupational and Environmental Health, The University of Iowa, Iowa City, IA

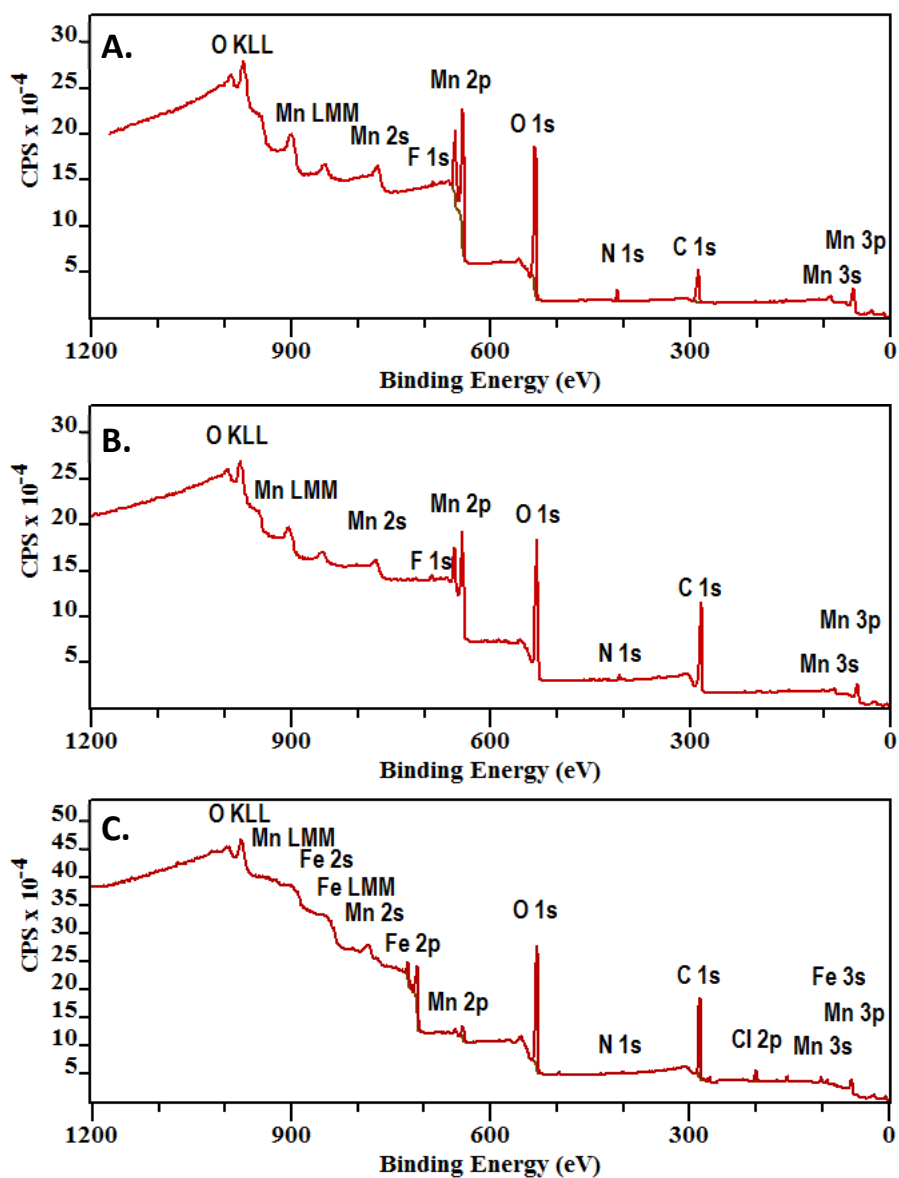
<sup>2</sup> Department of Chemistry and Biochemistry, University of California San Diego, La Jolla, CA

<sup>3</sup> Scripps Institution of Oceanography and Department of Nanoengineering, University of California,  
La Jolla, CA

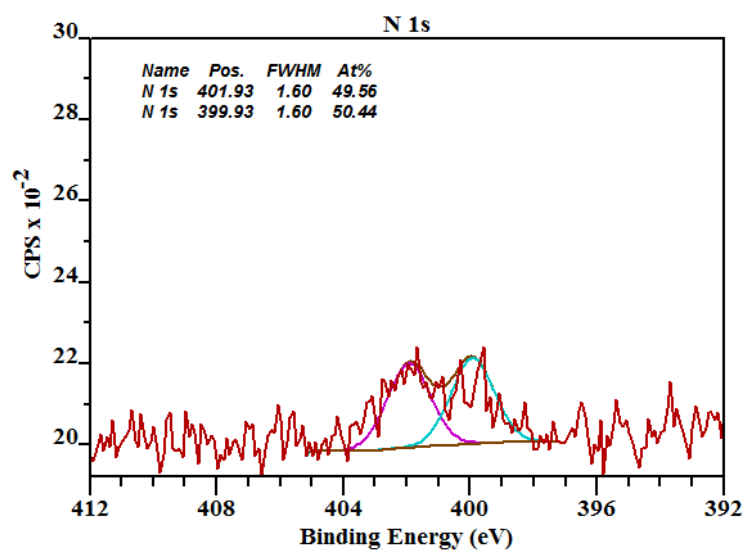
**Supplementary Information: Supplemental Figure 1 – 3.**

## Supplementary Information

**Suppl. Figure 1.** Survey XPS spectra of fresh fume Mn (A), agglomerated Mn nanoparticles (B) and welding fume sample (C).



**Suppl. Figure 2.** High resolution XPS spectrum of N(1s) region of the welding fume sample.



**Suppl. Figure 3.** Characterization and dissolution studies of  $\text{Mn}_3\text{O}_4$  nanocrystals. SEM images (A), XRD diffractograms (B) and dissolution studies (C) of single phase  $\text{Mn}_3\text{O}_4$  (left) and mixed phase Mn oxide (right) nanomaterials used as standards. Simulated biological fluids used in dissolution studies: Gamble's (blue) and ALF (brown), and in PBS (pH 7.4) (green) and pH 4.5 (red) buffers.

